

REMARKS

In the Official Action the Examiner rejected all of the claims under 35 U.S.C. § 103 as being unpatentable over the Allen reference, U.S. Patent No. 4,678,093, in view of the Lam reference, U.S. Patent No. 6,394,903. Applicant has canceled all of the original independent claims and added a new independent Claim 18 corresponding generally in scope to original Claim 4.

With reference to the application drawings Claim 18 is directed to a musical infant nursing bottle 10 employing a liquid container 12, an electrical power source in the form of a battery 24, and a musical player 23. The liquid container 12 is received and supported by a base 20 that contains the electrical power source 24 and the musical player 23. The base 20 supports the liquid container 12 from beneath and also serves as a stand for supporting the liquid container 12 in an upright vertical orientation. The base 20 defines within its structure a cavity 21 with a circular outer perimeter at the peripheral wall 46 and an axial center, indicated by the axis 44.

According to the improvement of the invention an omnidirectional gravity operated switching mechanism is provided. This mechanism includes a cavity floor 50 formed within the base 20 as an inverted, frustoconical inclined surface. The floor 50 has a detent recess therein at the axial center of the cavity 21. The cavity floor 50 is inclined toward the detent recess, which is a central, circular aperture 52 located at the axial center of the

cavity 21. The cavity floor 50 is inclined toward the detent recess 52 at an angle of no less than about two degrees and no greater than about ten degrees (Specification, page 4, lines 7-8). The floor 50 slopes from the outer perimeter of the cavity 21 away from the liquid container 12 and toward the axial center at a uniform angle of inclination relative thereto.

A sphere 54 is provided and is movable by gravity to roll freely across the floor 50 and beneath the liquid container 12 when the liquid container 12 is tilted from vertical alignment, as illustrated in Fig. 4. The detent recess is a circular aperture 52 of diameter smaller than that of the sphere 54. The circular aperture 52 is located in the floor 50 at the axial center of the cavity 21.

The sphere 54 rolls across the inclined surface of the floor 50 and releaseably lodges in the detent recess 52 when the liquid container 12 resides in vertical alignment. An electrical switch 25 has a switch actuator button 58 and is located directly beneath the detent recess 52. Accordingly, the weight of the sphere 54 operates the switching actuator button 58 when the sphere 54 is lodged in the detent recess 52 to create an open circuit condition between the electrical power source (battery 24) and the musical player 23. The sphere 54 rolls out of the detent recess 52, as indicated in Fig. 4, to create a closed circuit condition between the electrical power source 24 and the musical player 23 when the base 20 is tilted sufficiently from vertical alignment.

In rejecting all of the claims of Applicant's invention the Examiner relied primarily

upon the Allen reference, as a principal reference, and combined with the Allen reference teachings of the Lam reference.

The Allen reference, U.S. Patent No. 4,678,093, involves an electrical switching system for a musical baby bottle that is actuated by tilting the bottle, but which employs a plurality of mercury switches, 48, 50, and 80. While the switches are alternatively closed by tilting the bottle in certain directions, this system does not provide omnidirectional operation. Furthermore, it carries the risk of exposure to mercury should any of the switches break and leak. This could represent a serious hazard to the health of the infant and also to others.

Like Applicant's invention, the Allen reference is directed to a musical baby bottle. On the other hand the Lam reference is directed to a toy dice, which has a cubical body with six sides and at least two electronic playing functions (Lam, col. 1, lines 4-8). In the embodiment of Fig. 2 of the Lam reference, the dice 10 incorporates the position sensor 30 located centrally within the dice body 15 for sensing which side 20 of the dice 10 faces up when the dice 10 is thrown or rolled (Lam, col. 2, lines 31-33). The position sensor 30 has a generally spherical shell 32 and an electrically conductive metal ball 34 held captive within the shell 32 for free movement. The shell 32 is formed with six pockets 36 which face inwards and are just sufficiently large to receive the metal ball 34 (Lam, col. 2, lines 41-46).

When the metal ball 34 falls into a pocket 36, it acts as a moving contact between electrical contact plates 42 and 44, which form a trigger 40. The six triggers 40 are connected to different wires and then to an integrated circuit 50. The integrated circuit 50 is programmed to check the status of the triggers 40 sequentially, identify the one that is closed and then to play a corresponding function or game (Lam, col. 3, lines 13-16).

A dice must necessarily, when thrown, come to rest upon one of its six faces. Since the shell 32 is spherical, it defines a spherical cavity within its structure. In contrast, the cavity of Applicant's invention is not spherical, but is formed with an inverted, frustoconical floor. Consequently, the inclination of the floor relative to the axial center of the cavity is uniform, unlike the spherical interior surface of the shell 32 in the Lam reference.

Furthermore, and as required in independent Claim 18, the cavity floor 50 of Applicant's invention is inclined toward the detent recess 52 at an angle of no less than about two degrees and no greater than about ten degrees. In contrast, the angle of inclination of the interior surface of the sphere 32 increases from an angle approaching zero degrees at the intersection of each recess to an angle of ninety degrees at the location on the interior surface of the shell 32 of the next adjacent recess.

Therefore, even if one combines the teaching of Lam with those of the Allen reference, the resultant structure would still fail to have "a cavity floor formed within said

base as an inverted, frustoconical, inclined surface...inclined toward said detent recess at an angle of no less than about two degrees and no greater than about ten degrees and...toward said axial center at a uniform angle of inclination relative thereto”.

Furthermore, and as acknowledged by the Examiner in the Official Action, each of the pockets 36 in the Lam reference has a diameter greater, not less than, the diameter of the conductive metal ball 34. If this were not so the metal ball 34 would not drop into the pocket 36 and therefore would not make contact with the contact plate 42.

On the other hand, Applicant specifically provides that the detent recess 52 is a circular aperture of a diameter smaller than that of the sphere 54. Consequently, a combination of the teaching of the Lam reference with the Allen reference fails to provide this feature of Applicant's invention as well.

In rejecting Claim 6 in the Official Action the Examiner acknowledged that the diameter of Lam's detent recess is larger, not small than the diameter of the sphere. However, the Examiner stated that Applicant has not disclosed that having a detent recess smaller than the diameter of the sphere is for any particular purpose. The Examiner further stated that it appeared that the aperture diameter of Lam, or Applicant's invention, would perform equally well as the detent recess for the sphere. However, this is not the case.

As disclosed in the Specification, the sloped incline of the cavity floor should not be so shallow that the sphere will roll out of the detent due to a slight agitation of the liquid

container 12. On the other hand, the inclination should not be so steep that the sphere will remain lodged in the detent unless the liquid container is tilted so far that the closed bottom of the container is above its top (Specification, page 4, lines 2-7).

The reason for the limitation of slope of inclination of the floor of the cavity in Applicant's invention between an angle of two and ten degrees is that such a slope will allow the sphere 54 to roll out of the detent recess 52 when the liquid container 12 is tilted to only a relatively small degree. The same is not true of the Lam reference, which would require rotating the dice 10 at least ninety degrees in order to dislodge the sphere 34 from a pocket 36. A requirement for such an extreme tilting of the object would be undesirable for a baby bottle, since it is desirable for the open circuit condition to be terminated to allow the musical player to play a lullaby or other soft music to a feeding infant when the base 20 of Applicant's invention is tilted to only a small extent, as may occur during the feeding of an infant (Specification, page 4, lines 14-21).

It is important for the diameter of the sphere 54 of Applicant's invention to be greater than diameter of the detent recess 52 for the same reason. That is, in Applicant's invention the detent recess 52 serves to lodge the sphere 54 only when the bottle is upright, or is tilted from an upright orientation to only a relatively small angle of between two and ten degrees. On the other hand, because the sphere 34 in the Lam reference drops into the pocket 36, the dice 10 must be tilted at least ninety degrees to dislodge it. Such an extreme

tilting in angular orientation would be undesirable in order to actuate music in feeding a baby. Often, particularly when an infant is held in a parent's arms during feeding, the bottle may not even approach a ninety degree tilt from vertical orientation. As specifically noted in the Specification of the present application, the inclination of the floor may be such that the sphere rolls out of the detent when the infant nursing bottle is tilted only ten degrees or more from vertical alignment (Specification, page 5, lines 13-15).

In the Lam reference the diameter of sphere 34 must be smaller than the diameter of the pocket 36, otherwise the sphere 34 cannot make physical contact with the contact plate 42 as illustrated in Fig. 2. That is, unless the sphere 34 passes completely into the pocket 36, no electrical contact is made. The same is true in the embodiments of Figs. 6 and 7 of the Lam reference. In no case will a tilting of the dice 10 to an angle of at least about two degrees and no greater than about ten degrees cause the sphere 35 in Lam to roll out of a pocket 36. However, Applicant specifically provides dislodgement of the sphere 54 from the detent recess 52 with a tilt of only small angles of this magnitude (Specification, page 4, lines 4-9).

As held in Hewlett Packard Co. v. Bausch & Lomb, Inc., 15 USPQ 2d 1525 (CAFC 1990):

"Apparatus claims cover what device is, not what it does, and this invention need not operate differently than prior art in order to be

patentable, but need only be different."

As held in Ex Parte Jackson, 146 USPQ 409 (1964):

"Claims are not rejected as unobvious over primary reference in view of secondary reference where to so modify device of primary reference would destroy its structural identity and mode of operation"

The structural identity and mode of operation of the musical baby bottle of the Allen reference would certainly be destroyed if its mercury switches were eliminated and a rolling sphere actuator substituted in place of them.

Moreover, the Lam reference relates to an entirely different field of art than musical baby bottles, as thus is not analogous art. As held in Heidelberger Druckmaschinen AG v. Hantscho Commercial Products Inc., 30 USPQ2d 1377 (CAFC 1994):

"As the district court correctly observed, in order to determine whether a reference is reasonably pertinent to the inventor's field of endeavor, one looks to, among other things, the problem confronting the inventor. Orthopedic Equipment Co. v. United States, 702 F.2d 1005, 1009, 217 USPQ 193, 196 (Fed. Cir. 1983).

When the patented invention is made by combining known components to achieve a new system, the prior art must provide a suggestion or motivation to make such a combination. See Northern Telecom Inc. v. Datapoint Corp.,

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908 F.2d 931, 934, 15 USPQ2d 1321, 1323 (Fed. Cir.), cert. denied, 498 U.S. 920 (1990); In re Geiger, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987) (obviousness can not be established by combining pieces of prior art absent some "teaching, suggestion, or incentive supporting the combination").

Likewise, as held by the Court of Appeals for the Federal Circuit in In re Oetiker, 24 USPQ2d 1443 (CAFC 1992):

"Prior art reference, in order to be relied upon as bases for rejecting applicant's invention, must either be in field of applicant's endeavor or, if not, be reasonably pertinent to particular problem with which inventor was concerned; combination of elements from non-analogous sources, in manner that reconstructs Applicant's invention only with benefit of hindsight is insufficient to present prima facie case of obviousness."

As held by the Patent Office Board of Patent Appeals and Interferences in Ex parte Levengood, 28 USPQ2d 1300 (BPA&I 1993):

"...examiner cannot establish obviousness by locating references which describe various aspects of applicant's invention unless examiner also provides evidence of motivating force which would impel person skilled in art to do what applicant has done."

The record is devoid of any showing of a motivation for one to combine the switch

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actuation system of the Lam reference with the musical baby bottle of the Allen reference.

As held by the Patent Office Board of Patent Appeals and Interferences in Ex parte Obukowicz, 27 USPQ2d 1063 (BPA&I 1993):

"In proceedings before the Patent and Trademark Office, the examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art. In re Piasecki, 745 F.2d 1468, 1471-72; 223 USPQ 785, 787-88 (Fed. Cir. 1984). The examiner can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. In re Fine, 837 F.2d 1071, 1074; 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Indeed, the teachings of references can be combined only if there is some suggestion or incentive to do so. ACS Hospital Systems, Inc. v. Montefiore Hospital, 723 F.2d 1572, 1577; 221 USPQ 929, 933 (Fed. Cir. 1984)."

In the present case there is no motivation whatsoever to a person of ordinary skill in the art to substitute the rolling ball switch actuator of the Lam reference for the mercury switches of the Allen reference.

As held by the Court of Appeals for the Federal Circuit in In re Lee, 61 USPQ2d 1430, at pp. 1432 - 1433:

“... When patentability turns on the question of obviousness, the search for an analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness. See. e.g., *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339 1351-5, 60 USPQ2d 1001. 1008 (Fed. Cir. 2001) (“the central question is whether there is reason to combine [the] references.” a question of fact drawing on the Graham factors).

“The factual inquiry whether to combine references must be thorough and searching.” *Id.* It must be based on objective evidence of record. This precedent has been reinforced in myriad decisions, and cannot be dispensed with. See, e.g., *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F3d 1120, 1124-25; 56 USPQ2d 1456, 1459 (Fed. Cir. 2000) (“a showing of a suggestion, teaching or motivation to combine the prior art references is an ‘essential component of an obviousness holding’”) (quoting *C.R. Bard. Inc v. M3 Systems, Inc.*, 157 F.3d 1340, 1352; 48 USPQ2d 1225, 1232 (Fed. Cir. 1998)); *In re Dembiczak*, 175 F.3d 994, 999; 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) (“Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to

combine prior art references."); In re Dance, 160 F3d 1339, 1343; 48 USPQ2d 1635, 1637 (Fed. Cir. 1998) (there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant); In re Fine, 837 F2d 1071, 1075; 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) (" 'teachings of references can be combined only if there is some suggestion or incentive to do so.' ") (emphasis in original) (quoting ACS Hosp. Sys., Inc. v. Montefiore Hosp 732 F.2d 1572, 1577; 221 USPQ 929, 933 (Fed Cir. 1984))."

Moreover, the Examiner must identify where the prior art provides a motivating suggestion for the modification. The Courts have held that even if the prior art may be modified as suggested by the proponent of obviousness, the modification is not obvious unless the prior art suggests the desirability for the modification. For example, in the decision in In re Fritch, 922 F. 2d 1260, 23 USPQ2d 1780 (CAFC 1992), the Court held:

"Mere fact that prior art may be modified to reflect features of claimed invention does not make modification, and hence claimed invention, obvious unless **desirability** of such modification is suggested by prior art....It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious." [at 1783-1784] [**Emphasis added**]

The Court referred to its own prior decision in In re Gordon, 733 F.2d 900, 221 USPQ 1125 (CAFC 1984) which held at page 1127:

“The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the **desirability** of the modification.

In addition, it has been held that the motivating suggestion must be **explicit**, as was decided in Winner International Royalty Corp. v. Wang, 11 F. Supp. 2d 18, 48 USPQ2d 1139 (USDC DC 1998), where the Court held:

“...simplicity of device alone is not determinative, since invention cannot be found obvious unless there was some **explicit** teaching or suggestion in art to motivate one of ordinary skill to combine elements so as to create same invention.” [at 1140] [Emphasis added]

“...there must have been some **explicit** teaching or suggestion in the art to motivate one of even ordinary skill to combine such elements so as to create the same invention.” [at 1144] [Emphasis added]

The Court of Customs and Patent Appeals reminded itself and the PTO that it is necessary to consider "the reality of the circumstances", In re Wood, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979) -- in other words, common sense -- in deciding in which fields a person of ordinary skill would reasonably be expected to look for a solution to the

problem facing the inventor.

The combination of elements from nonanalogous sources, in a manner that reconstructs the applicant's invention only with the benefit of hindsight, is insufficient to present a prima facie case of obviousness. There must be some reason, suggestion, or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination. That knowledge can not come from the applicant's invention itself. Diversitech Corp. v. Century Steps, Inc., 850 F.2d 675, 678-79, 7 USPQ2d 1315, 1318 (Fed. Cir. 1988); In re Geiger, 815 F.2d 686, 687, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987); Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1147, 227 USPQ 543, 551 (Fed. Cir. 1985).

To summarize, Applicant's invention, as defined in the sole independent Claim 18 remaining in the application, requires the following features which are neither disclosed nor suggested in either of the references relied upon for rejection.

- (1) a cavity floor formed within the base as an inverted, frustoconical inclined surface,
- (2) inclined towards the detent recess at an angle of no less than about two degrees and no greater than about ten degrees,
- (3) at a uniform angle of inclination relative to the detent recess,
- (4) a detent recess of circular diameter smaller than that of the sphere.

None of these claimed features are present in the combination of Lam with Allen.

Similarly, the remaining references cited likewise fail to disclose the structural combination claimed by Applicant. Swiss Patent No. CH 690 165 relates to a musical baby bottle. The body weight of the contact element 40 makes or breaks contact with the element 43 depending upon whether or not the baby bottle is inverted, as shown in Fig. 1, or upright, as shown in Fig. 3.

The Hadaway reference, U.S. Patent No. 5,664,745, relates to a musical baby bottle adapter 10. An actuating button 34 has an electrically conductive core 36 which makes contact with a musical melody component 22 when pressure is placed on a dome 40.

The Goo reference, U.S. Patent No. 4,817,950 does not relate to a musical baby bottle, but rather discloses an attitude sensor for a surfing video game. It employs a bell-shaped pendulum member 60 (Fig. 5) mounted concentrically in the interior of a housing which can swing in any direction to contact a selected electrical contact 78, 80, 90, or 92 located at ninety degree intervals around the internal periphery of the sensing unit (Fig 6).

The Tomich reference, U.S. Patent No. 6,392,556 is directed to a chair tilt alarm 10 and envisions use on a school chair (col. 1, lines 54-62). The chair tilt alarm warning device 18, like the Lam reference, employs a movable conductive member 76 that comes in contact with two or more electrodes 80 (Figs. 5A-5D). The switch is bowl-shaped rather than an inverted frustoconical shape. It has no detent recess and is a mercury switch (col.

4, lines 52-65).

The Tang et al reference, U.S. Patent No. 4,415,776, is directed to a telephone music on hold device. The gravity switch 42, like the switches in the Allen reference, are mercury switches (col. 3, lines 50-52).

The Liu reference, U.S. Patent No. 5,672,090, relates to a rocking equine-like toy figure with illumination for playtime stimulation (col. 1, lines 40-41). A motion switch 50 employs a ball 51 that rolls forward or backwards along a linear travel path under influence of gravity (Figs. 3 and 4). The motion switch 50 is therefore not omnidirectional. The motion switch 50 has electrical circuit closing contacts 53a, 53b, and 53c. The ball 51 alternatively bridges the contacts 53a and 53b or the contacts 53b and 53c for a short time to close the circuit 45 during travel of the ball 51 back and forth within the cage 52, enabling the energized circuit 45 to illuminate the hoofs 20 by light bulbs 30 (col. 5, lines 1-12).

Applicant believes that Applicant's invention, as defined in independent Claim 18 and in the remaining dependent claims in the application is neither disclosed nor suggested in the references cited. Accordingly, Applicant respectfully requests reconsideration of the

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rejection of claims and passage of the application to issue in due course.

Date: March 29, 2006

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